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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DI GRAZIO, JEANNE A	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/819,800	UMEDA ET AL.	
	Examiner	Art Unit	
	Jeanne A. Di Grazio	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/16/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

Claims 1-21 are pending.

Priority

Priority to Japanese patent Applications 100677/2000 (April 3, 2000) and 345352/2000 (Nov. 13, 2000) is claimed.

Election/Restrictions

Applicant's election with traverse of Species B of Species A-D, Species F of Species E-F, Species H of Species G-H, and Species I of Species I-J in the reply filed on April 29, 2004 is acknowledged. The traversal is on the ground(s) as stated in Applicant's Election of April 29, 2004.

Applicant's arguments having been found persuasive, said requirement for election / restriction is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,694,187 (to Abileah et al.) in view of United States Patent 5,895,106 (to VanderPloeg et al.).

Regarding claim 1, Abileah teaches and discloses an LCD including a negative biaxial retarder on each side of a liquid crystal layer (entire patent) and a plurality of retarders. Abileah teaches that different types of retardation films (negative uniaxial, positive or negative biaxial) may be used in the invention (Column 14, Lines 13-18).

Abileah teaches and discloses, in reference to Figures 11 (b & c), that there is an angle of about 90^0 between front and rear retarders (Applicant's "at least two optically anisotropic layers

formed by orienting an optically anisotropic compound, the orientation direction in the optically anisotropic layer plane of the optically anisotropic compound in the two optically anisotropic layers intersecting each other at an angle of from 80 to 100 degrees").

Abileah does not appear to explicitly specify one of the two optically anisotropic layers, when the optically anisotropic compound is uniaxial, is oriented so that a first angle of the optic axis of the uniaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that a second angle of a direction giving maximum refractive index of the biaxial optically anistropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, and the other optically anisotropic layer, when the optically anisotropic compound is uniaxial, is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that the second angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

However, VanderPloeg is drawn to a NW twisted nematic LCD with negative tilted retarders on one side of a liquid crystal cell in which each of first and second tilted retardation layers defining an azimuthal angle, and a polar or incline angle which varies in at least one direction (upward or downward) through the thickness of the layer (Column 5, Lines 9-12 and entire patent).

As a result of particular orientations, alignments, and retardation values, the VanderPloeg display exhibits improved contrast and reduced inversion (Abstract and entire patent).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Abileah in view of VanderPloeg for improved contrast and reduced gray level inversion (Column 1, Lines 15-22).

As to claim 2, VanderPloeg teaches that the retarders are of a discotic liquid crystalline compound (Column 8, Lines 7-10).

As to claims 3-6, as noted, Abileah teaches that different types of retardation films (negative uniaxial, positive or negative biaxial) may be used in the invention (Column 14, Lines 13-18).

As to claim 7, because both Abileah and VanderPloeg teach and disclose the above noted materials for their retarders, it may be presumed that the materials satisfy the claimed wavelength dispersion property.

As to claims 8-11, as noted, VanderPloeg teaches that particular orientations of the retarders with respect to substrate and liquid crystal layer affects contrast and reduced inversion.

As to claims 17 and 18, because both Abileah and VanderPloeg teach and disclose the above noted materials for their retarders, it may be presumed that the materials satisfy the claimed retardations.

Regarding claim 19, Abileah teaches and discloses an LCD including a negative biaxial retarder on each side of a liquid crystal layer (entire patent) and a plurality of retarders. Abileah teaches that different types of retardation films (negative uniaxial, positive or negative biaxial) may be used in the invention (Column 14, Lines 13-18).

Abileah teaches the retarders between polarizing plates P_F and P_R (Figure 11(a)).

Abileah teaches and discloses, in reference to Figures 11 (b & c), that there is an angle of about 90^0 between front and rear retarders (Applicant's "at least two optically anisotropic layers formed by orienting an optically anisotropic compound, the orientation direction in the optically anisotropic layer plane of the optically anisotropic compound in the two optically anisotropic layers intersecting each other at an angle of from 80 to 100 degrees").

Abileah does not appear to explicitly specify one of the two optically anisotropic layers, when the optically anisotropic compound is uniaxial, is oriented so that a first angle of the optic axis of the uniaxial optically anisotropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that a second angle of a direction giving maximum refractive index of the biaxial optically anistropic compound to the optical compensation sheet plane increases continuously or stepwise in the thickness direction of the optical compensation sheet, and the other optically anisotropic layer, when the optically anisotropic compound is uniaxial, is oriented so that the first angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet, or when the optically anisotropic compound is biaxial, is oriented so that the second angle decreases continuously or stepwise in the thickness direction of the optical compensation sheet.

However, VanderPloeg is drawn to a NW twisted nematic LCD with negative tilted retarders on one side of a liquid crystal cell in which each of first and second tilted retardation layers defining an azimuthal angle, and a polar or incline angle which varies in at least one direction (upward or downward) through the thickness of the layer (Column 5, Lines 9-12 and entire patent).

As a result of particular orientations, alignments, and retardation values, the VanderPloeg display exhibits improved contrast and reduced inversion (Abstract and entire patent).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Abileah in view of VanderPloeg for improved contrast and reduced gray level inversion (Column 1, Lines 15-22).

As to claim 20, Abileah shows various orientations of the polarizer and retarder axes.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,694,187 (to Abileah et al.) in view of United States Patent 5,895,106 (to VanderPloeg et al.) and further in view of United States Patent 5,646,703 (to Kamada et al.).

As to claims 12-15, Abileah does not appear to explicitly specify the nature of the support (transparent, substantially optically isotropic, negative uniaxial optical property, refractive indicies, and retardation in thickness direction).

Kamada teaches and discloses a liquid crystal display and a support made of triacetyl cellulose (TAC)(Column 4, Lines 65-67 and Column 5, Lines 1-10).

Such a film is transparent, high light transmittance, and contributes to excellent viewing characteristics such as increased viewing angle (Column 4, Lines 65-67).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Abileah in view of Kamada for increased viewing angle.

Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,694,187 (to Abileah et al.) in view of United States Patent 5,895,106 (to VanderPloeg et al.) and further in view of United States Patent 6,630,973 B1 (to Matsuoka et al.).

As to claim 16, Abileah does not appear to explicitly specify that the support is a cellulose ester.

However, Matsuoka teaches and discloses an optically anisotropic cellulose ester film containing a discotic compound and teaches that a cellulose ester film of high retardation value is superior to a stretched film of a synthetic polymer because it is easier to use than prior art films, functions better than prior art films and can be used to support an ellipsoidal polarizing plate (Column 4, Lines 5-20).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Abileah in view of Matsuoka for a cellulose ester film as a support because it is easier to use than prior art films, functions better than prior art films and can be used to support an ellipsoidal polarizing plate (Column 4, Lines 5-20).

As to claim 21, Matsuoka discloses an ellipsoidal polarizing plate as noted.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

P. van de Witte et al., Novel Compensation Foils for Active-Matrix TN Displays (SID 97 Digest at pages 687-688, 690 and 693)(discussing two-layer compensators with positive

birefringence and a tilted indicatrix for enhanced performance at oblique viewing angles, a larger viewing cone, minimal gray scale inversion and a better color saturation).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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JDG

TARIFUR R. CHOWDHURY
PRIMARY EXAMINER